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Hoverfly species (Diptera, Syrphidae) collected near Rowardennan, Loch Lomondside, August, 2011

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A field outing to the Scottish Centre for Ecology and the Natural Environment (SCENE) at Rowardennan, Stirlingshire, followed the Sixth International Symposium on the Syrphidae (Diptera). It was the final day of this biennial meeting, held at the Hunterian Museum, University of Glasgow, during which 72 delegates had debated and discussed the systematics, ecology and biology of the hoverflies on a worldwide scale. The field outing on 8th August was essentially an opportunity to relax after three days of being indoors listening to lectures and viewing poster presentations on research in progress. A number of the delegates took the opportunity to record the hoverfly species that could be seen around the immediate environs of the SCENE field station buildings on the Ross peninsula. The following list is the product of this effort and is a good representation of the expected fauna. The sunny weather undoubtedly helped in producing a total of 63 species, a few of which are commented on individually in the following two paragraphs.

During the symposium a new edition of distribution maps for hoverflies in the United Kingdom was launched which contains new data on altitudinal and habitat preferences and phenology. Analyses of trends have been included for both recording effort and recent changes in species' ranges (Ball, *et al.*, 2011). This publication is used here to indicate species that deserve special mention for various reasons. Some are scarce in the north of Britain such as *Cheilosia proxima* and *C. vernalis*. Species that require good quality wooded habitat include *Arctophila superbiens*, *Ferdinandea cuprea* and *Xylota jakutorum*. Although these three species have been recorded previously in the area it is good to know they are still resident. With similar habitat requirements, but developing as larvae in woodland fungi, are records of *Cheilosia longula* and *C. scutellata*. Generally scarce species of local note are *Didea fasciata*, *Dasysyrphus pinastri*, *Helophilus trivittatus*, *Meliscaeva compositorum*, *M. umbellatorum* and *Scaeva pyrastri*. One of the more interesting species is *Eriozona syrphoides* which became established in Britain about 40 years ago in association with spruce plantations. These trees support an aphid species, *Cinara piceae* (Panzer), that the larvae utilise as a food source. There are only thirteen other 10Km Ordnance Survey grid squares in Scotland where it has been seen since 2000 (Ball, *et al.*, 2011).

An outstanding addition to Scotland's fauna as a result of this meeting is *Ferdinandea ruficornis*. The latest distributional data show no known records north of Yorkshire (Ball, *et al.*, 2011). This species is regarded as rare or even endangered in many areas of mainland Europe. Like its more common sibling, *F. cuprea*, the larvae develop in sap in deciduous trees. Often, but not exclusively, these are oak trees in which this resource has been created by the tunnelling activities of the goat moth (*Cossus cossus* Linn.). The larvae of *F. ruficornis* have not been described (Rotheray, 1993) but are presumed to be very similar to *F. cuprea*. Goat moths are known from Central Scotland but are rare and have not been positively recorded on Lochlomondside (Knowler, 2010). Combined searching for the larvae of the moth and both species of *Ferdinandea* in the area around SCENE is an obvious strategy. More details of the Lochlomondside finding of *F. ruficornis* have been written up (Ricarte, *et al.*, 2011).

Species list in alphabetical order

Nomenclature follows Chandler (1998) with any changes or species added since then given in Ball et al. (2011). The asterisk * denotes records that were provided by Jeroen van Steenis just south of the field station on 2nd August, 2011, within the same NGR 10Km square as SCENE.

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Species	Recorder
Arctophila superbiens (Müller) *	(JvS)
Baccha elongata (Fabricius)	(MR)
Cheilosia antiqua (Meigen)	(ASs)
Cheilosia bergenstammi Becker	(EGH, JvS; WvS)
Cheliosia fraterna (Meigen)	(RM)
Cheilosia illustrata (Harris)	(JSetal)
Cheilosia longula (Zetterstedt)	(WvS)
Cheilosia proxima (Zetterstedt) *	(JvS)
Cheilosia scutellata (Fallén)	(JvS; WvS)
Cheilosia vernalis (Fallén)	(MR)
Chrysogaster solstitialis (Fallén)	(ASs)
Chrysotoxum arcuatum (Linnaeus)	(ASs; JSet al; WvS)
Chrysotoxum bicinctum (Linnaeus)	(ASs; JSet al; JvS)
Dasysyrphus albostriatus (Fallén)	(EGH; MM)
Dasysyrphus pinastri (De Geer)	(KW)
Dasysyrphus tricinctus (Fallén)	(EGH; JSet al; JvS)
Didea fasciata Macquart	(ASs)
Epistrophe grossulariae (Meigen)	(AR; EGH; KW; WvS)
Episyrphus balteatus (De Geer)	(ASs; EGH; JSet al; KW; RW; WvS; ZN)
Eriozona syrphoides (Fallén)	(ASs)
Eristalis abusivus Collin *	(JvS)
Eristalis interruptus (Poda)	(RM)
Eristalis intricarius (Linnaeus)	(NJ; JSet al)
Eristalis pertinax (Scopoli)	(AR; ASs; EGH; JSet al; KW; RW; WvS)
Eupeodes corollae (Fabricius)	(JSet al)
Ferdinandea cuprea (Scopoli)	(MR)
Ferdinandea ruficornis (Fabricius)	(JQ; determined by AR & ZN]
Helophilus pendulus (Linnaeus)	(JSetal; KW; WvS;)
Helophilus trivittatus (Fabricius)	(JSet al)
Leucozona lucorum (Linnaeus)	(JSet al; KW; RW; WvS)
Leucozona glaucia (Linnaeus)	(AR; ASs; JSet al; KW; WvS; ZN)
Melangyna compositarum (Verrall)	(AR; WvS; ZN)
Melangyna umbellatarum (Fabricius) *	(JvS) [a female]
Melanostoma mellinum (Linnaeus)	(ASs, JSet al; WvS; ZN)
Melanostoma scalare (Fabricius)	(ASs; JSet al; KW; RW; WvS; ZN)
Meliscaeva auricollis (Meigen)	(ASs; JvS; WvS)
Meliscaeva cinctella (Zetterstedt)	(AR; ASs; JSet al; KW; RW; WvS; ZN)
Myathropa florea (Linnaeus)	(AR; ASs; JSet al; JvS; WvS)
Neoascia podagarica (Fabricius)	(MR; JSet al)
Orthonevra nobilis (Fallén)	(RM)
Platycheirus albimanus (Fabricius)	(ASs; JSet al ; KW; JvS; WvS; ZN)
Platycheirus clypeatus (Meigen)	(ASs; JSet al; MR)
Platycheirus fuliviventris (Macquart)	(RM)
Platycheirus granditarsis (Forster)	(JSet al)
Platycheirus nielseni Vockereth	(WvS)
Platycheirus occultus Goeldlin de T., et al.	(WvS)
Platycheirus peltatus (Meigen)	(ASs)
Rhingia campestris Meigen *	(JvS)
Riponnensia splendens (Meigen)	(AR; ZN)
Scaeva selenitica (Meigen)	(AR; WvS; ZN)
Sericomyia silentis (Harris)	(AR; ASs; JSet al; KW; RW; WvS; ZN)
Sphaerophoria interrupta (Fabricius) *	(JvS)
Sphegina clunipes (Fallén)	(JvS; MR)
Sphegina elegans Sehummel	(JvS; WvS)
Sphegina sibirica Stackelberg	(AR; ASs; JSet al; NJ; WvS; ZN)
Syritta pipiens (Linnaeus)	(JSet al)
Syrphus ribesii (Linnaeus)	(AR; ZN)
Syrphus torvus Osten Saeken	(WvS)
Syrphus vitripennis Meigen	(AR; KW; JSet al; WvS; ZN)
Volucella pellucens (Linnaeus)	(AS; ZN)
Xylota jakatorum Bagachanova	(WvS)
Xylota segnis (Linnaeus)	(AR; ASs; EGH; JSet al; KW; RW; WvS; ZN)
Xylota sylvarum (Linnaeus) *	(JvS)

Recorders

Antonio Ricarte (AR); Alan Stubbs (AS); Axel Ssymank (ASs); Geoff Hancock (EGH); Javier Quinto (JQ); Jeroen van Steenis (JvS); Menno Reemer (MR); Nigel Jones (NJ); John Smit, Maarten de Groot; Catalina Guitterez-Chacon, Jiri Hadrava (JH), Michael Mikal, working as a group (JSet al), Miriam Morales (MM); Roger Morris (RM); Richard Weddle (RW); Wouter van Steenis (WvS); Kenn Watt (KW); Zorika Nedeljkovic (ZN).

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First record of larval sea lamprey *Petromyzon marinus* L. in the Endrick Water, Loch Lomond

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Three lamprey species are known to occur in Scotland: European river *Lampetra fluviatilis* and brook lamprey *L planeri*, and the sea lamprey *Petromyzon marinus*. Although detailed records of their distribution remain scarce, lampreys have been sampled from 79 Scottish regions (ERA 2005). The sea lamprey is the rarest species in both records and surveys and has been recorded nationally in just 35 rivers, although their continuing presence in some is uneertain (ERA 2005).

The Endrick Water drains the South East catchment of Loch Lomond into its south basin. The river contains scientifically important populations of brook and river lamprey, and has been designated a Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI) as a result (Bond 2003; Hume 2011). Although several lamprey surveys have been conducted in recent years (Maitland et al. 1994; Gardiner et al. 1995; Gardiner & Stewart 1997, 1999; Forth Fisheries Foundation 2004; Hume 2011; Watt et al. 2011) adult sea lamprey have been recorded only very occasionally in the Endrick Water, and they have not been observed since the 1960s (Hunter et al. 1959; Maitland 1966). Spawning is believed to bc restricted to the efferent River Leven between the barrage (NS 393 894) and footbridge (NS 394 793) in Balloch (Maitland ct al. 1994; Gardiner ct al. 1995). Despite extensive sampling of larval habitat around the Loch Lomond basin in recent years, sca lamprey ammocoetes have until now only been recorded in the River Lcven.

On March 21st 2012 a single sea lamprey ammocoete was collected immediately downstream of Drymen Bridge on the Endrick Water (NS 473 874) in static traps designed to capture adult lampreys on their upstream spawning migration. This individual measured 151 mm in total length and was 4.6 g wet weight. Positive identification as *Petromyzon* as opposed to *Lampetra spp.* was confirmed from the following meristic and morphometrie characteristics (Fig. 1): trunk myomeres 71 (*P. marinus* 67-74; *Lampetra spp.* 58-64), oral hood fully pigmented (*Lampetra spp.* upper/lower lip unpigmented), caudal fin spade-like (*Lampetra spp.* typically rounded), robust head region (*Lampetra spp.* distinct pre-nostril region) (Renaud 2011). Sea lamprey larval duration is typically five years, although it can be as long as 19 years as growth rates vary enormously, so an accurate age estimate of just one individual is fraught with uncertainty. Based on typical values from other U.K. populations this individual is likely to be 3-5 years old, indicating that spawning took place in the Endrick Water at sometime between May/June 2007-2009 (Hardisty 1969; Bird et al. 1994).

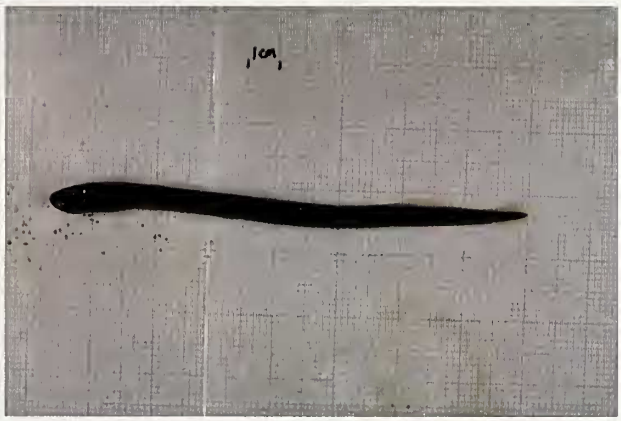

Fig. 1. *P. marinus* ammocoete

Throughout Scotland larval *Petromyzon* are recorded in very low densities compared with *Lampetra spp.*, even in rivers known to contain strong adult spawning populations (APEM 2004; ERA 2004; Watt et al. 2008). There remains the possibility that sea lamprey spawn in the Endrick Water in small numbers, but; that adults are not detected beeause trapping methodology excludes the larger body size of mature sea lamprey, and sea lamprey ammocoetes are not detected during routine surveys due to their inherent scarcity. Currently, the Endrick Water is a stronghold for lamprey in Scotland, with both *L. fluviatilis* and *L. planeri* populations being of international conservation importance (Bond 2003). If indeed this isolated record of larval *P. marinus* represents the first indication that